

REMARKS

Claims 1-9 are pending in the application. Claims 1, 2 and 5 have been amended. Claims 8 and 9 are newly added. Reconsideration of this application is respectfully requested.

The Office Action rejects claim 1 under the second paragraph of 35 U.S.C. 112 as indefinite because "opaque object" and "semitransparent object" lack antecedent basis. Claim 1 has now been amended to provide antecedent basis in the preamble for "opaque object" and "semitransparent object". Accordingly, it is submitted that the rejection of claim 1 under the second paragraph of 35 U.S.C. 112 is rendered moot by the amendment.

Claims 2 and 5 have also been amended by changing "object" to "objects" to provide proper antecedent basis.

The Office Action rejects claims 1-7 under 35 U.S.C 103(a) as unpatentable over U.S. Patent No. 5,923,333 to Stroyan, hereafter Stroyan, in view of U.S Patent No. 5,220,646 to Fossum, hereafter Fossum. Stroyan does not teach or show a method that executes a hidden surface removal or that updates the z-buffer during the third pass of the method thereof as recited in claim 1. The Office Action concedes that Stroyan does not update the z-buffer during his third pass. The Office Action also concedes that Stroyan does not teach a rendering method that is capable of either selecting to output the dta while updating the z-buffer or the data without updating the z-buffer, as recited in claim 5.

The Office Action then cites Fossum as teaching to turn the z-buffer on and off while drawing a polygon. The Office Action then concludes that "...it would have been obvious to one of ordinary skill in the art to combine the

systems of Stroyan and Fossum to yield a system wherein the z-buffer can be re-enabled for the third pass, because by enabling the z-buffer for the third pass, it is possible to draw and blend multiple transparent objects that are closer than the opaque object.”

This conclusion is erroneous. Stroyan teaches a three pass method that, in passes two and three, processes backward and forward facing primitives of transparent objects, respectively, while disabling the z-buffer. That is, the results of passes two and three are sent to the frame buffer and not the z-buffer.

Fossum teaches a single pass polygon drawing method that is repeated for each polygon to be rendered. To use this teaching in Stroyan would result in method that has as many passes as there are polygons to be displayed. To apply this teaching of drawing a single polygon at a time to the Stroyan system that draws many polygons at a time is an unreasonable dissection of Stroyan and Fossum that can only be made with the hindsight of applicants' teaching.

Hindsight reconstruction of the art cannot be the basis of a rejection under 35 U.S.C. 103. The prior art itself must suggest that modification or provide the reason or motivation for making such modification. *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ 2d 1397, 1398-1399 (CAFC, 1989). “The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made.” *Sensonics Inc. v. Aerosonic Corp.* 38 USPQ 2d 1551, 1554 (CAFC, 1996), citing *Interconnect Planning Corp. v. Feil*, 774 F. 2d 1132, 1138, 227 USPQ 543, 547 (CAFC, 1985).

For the reasons set forth above, it is submitted that the rejection of claims 1-7 under 35 U.S.C. 103(a) is erroneous and should be withdrawn.


Newly presented claims 8 and 9 recite that the depth information of the opaque object stored in the z-buffer initially or during the step of drawing the opaque object is available for comparisons during the steps of drawing semitransparent objects of claim 1 or during judging and blending of claim 3. It is submitted that claims 8 and 9 distinguish from Stroyan and Fossum and are, therefore, allowable.

Attached hereto is a marked-up version of the changes made to the specification and claims by the present amendment. The attachment is captioned "Version With Markings To Show Changes Made."

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 112 and 35 U.S.C. 103(a) be withdrawn, that claims 1-9 be allowed and that this application be passed to issue.

Respectfully Submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Application, Serial No. 09/433,475

IN THE CLAIMS

Please amend the claims as follows:

1. (Amended) A drawing method for displaying image data about a plurality of objects including an opaque [objects] object and semitransparent objects, each having information about a depth direction, on a computer display screen by using an updatable Z-buffer as a storage, said method comprising the steps of:

drawing said opaque object alone of the image data, while updating said Z-buffer and executing a hidden surface removal by said Z-buffer algorithm;

drawing said semitransparent [object] objects alone of the image data without updating said Z-buffer and while executing the hidden surface removal by said Z-buffer algorithm; and

drawing said semitransparent [object] objects alone of the image data, while updating said Z-buffer and executing the hidden surface removal by said Z-buffer algorithm.

2. (Amended) The method according to claim 1, wherein said steps of drawing said semitransparent [object] objects are executed by alpha blending.

5. The apparatus according to claim 3, wherein the blending for said semitransparent [object] objects is executed by alpha blending.